

I Claim as My Invention:

1. A temperature-protected semiconductor switch, comprising:
 - a semiconductor body of first conductivity type;
 - a semiconductor switch element formed of a plurality of cells connected in parallel and including an integrated reverse diode;
 - a temperature sensor which generates a first signal given the occurrence of an excess temperature, wherein the semiconductor switch element and the temperature sensor are integrated together in the semiconductor body; and
 - a charge carrier detector that generates a second signal given the occurrence of free charge carriers in the semiconductor body.

2. A temperature-protected semiconductor switch as claimed in claim 1, further comprising:
 - a parasitic component formed between the charge carrier detector, the semiconductor body and at least one cell of the semiconductor switch element.

3. A temperature-protected semiconductor switch as claimed in claim 1, further comprising:
 - an evaluation means, wherein the first and second signals are supplied to the evaluation means and logically operated with one another thereat for indicating an unambiguous excess temperature in the semiconductor switch element.

4. A temperature-protected semiconductor switch as claimed in claim 1, wherein the charge carrier detector is positioned adjacent the temperature sensor.

5. A temperature-protected semiconductor switch as claimed in claim 1, wherein the temperature sensor is attached proximate a hottest location of the semiconductor body.

6. A temperature-protected semiconductor switch as claimed in claim 1, wherein the charge carrier detector is positioned adjacent a signal line of the temperature sensor leading out of the semiconductor switch.

7. A temperature-protected semiconductor switch as claimed in claim 3, wherein the evaluation means is monolithically integrated with the semiconductor switch.

8. A temperature-protected semiconductor switch as claimed in claim 1, further comprising:

at least one of a bipolar transistor and a thyristor as the temperature sensor.

9. A temperature-protected semiconductor switch as claimed in claim 1, wherein the first conductivity type is n-conductive.